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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,853	03/12/2004	Masaharu Doi	19546.0055	6688
23517	7590	10/04/2005	EXAMINER	
SWIDLER BERLIN LLP 3000 K STREET, NW BOX IP WASHINGTON, DC 20007			DOAN, JENNIFER	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,853

Applicant(s)

DOI, MASA HARU

Examiner

Jennifer Doan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings, filed on 3/12/2004, are accepted.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a **single paragraph** on a separate sheet **within the range of 50 to 150 words**. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.

Appropriate correction is required.

4. Claim 7, line 1 recites "An optical waveguide". It should be changed to "An optical modulator".

Appropriate correction is required.

Applicant's cooperation is requested in correcting any other errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-7 and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Gopalakrishman (U.S. 2002/0106141 A1).

With respect to claim 1, Gopalakrishman (figure 1a) discloses an optical modulator (10), comprising a substrate (12) having the electro-optical effect; an optical waveguide (16) and ground electrodes (22, 24) formed on the substrate (12); and a traveling wave electrode formed on the substrate (12) including a first region to input an externally applied electrical signal, a second region to control the light propagated through the optical waveguide with an electric field generated between the ground electrodes due to the applied electric signal, and a third region provided at the intermediate region between the first region and the second region to propagate the electrical signal to the second region without any reflection (see figure 1a).

With respect to claims 3 and 9, Gopalakrishman (figure 1a) discloses the optical modulator (10), wherein the impedance of the third region of the traveling wave electrode is equal to the geometric mean of the impedance of the first

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region and the impedance of the second region of the traveling wave electrode (paragraphs [0010] and [0011]).

With respect to claims 4 and 10, Gopalakrishnan (figure 1a) discloses the optical modulator (10), wherein an interval between the traveling wave electrode in the third region and the ground electrodes is wider than the interval between the traveling wave electrode in the second region and the ground electrodes (22, 24).

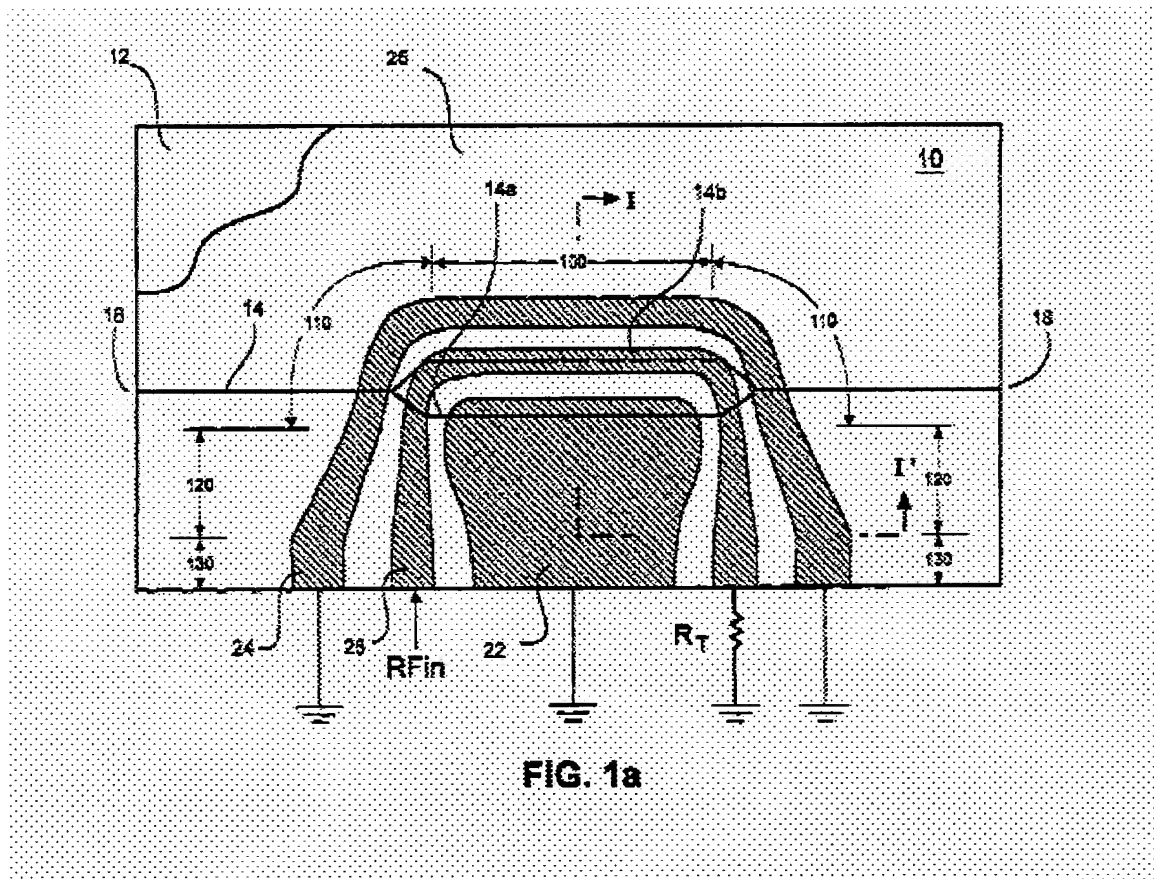
With respect to claims 5 and 11, Gopalakrishnan (figure 1a) discloses the optical modulator (10), wherein the width of the traveling wave electrode in the second region is wider than the width of the traveling wave electrode in the third region.

With respect to claims 6 and 12, Gopalakrishnan (figure 1a) discloses the optical modulator (10), wherein the traveling wave electrode in the second region is thicker than the traveling wave electrode in the third region.

With respect to claim 7, Gopalakrishnan (figure 1a) discloses an optical modulator (10) comprising a substrate (12) having the electro-optical effect; an optical waveguide (16) and ground electrodes (22, 24) formed on the substrate (12); and a traveling wave electrode formed on the substrate (12) including a first region to input an externally applied electrical signal, a second region to control the light propagated through the optical waveguide with an electric field generated with the applied electrical signal between the ground electrodes, and a third region provided at the intermediate region between the first region and second region, wherein an impedance for said electrical signal of said third

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region is equal to an intermediate value between the impedance for the electrical signal of the first region and the impedance for the electrical signal of the second region (see figure 1a, paragraphs [0010] and [0011]).

**FIG. 1a**

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gopalakrishman (as cited above).

With respect to claims 2 and 8, Gopalakrishman substantially discloses an optical modulator with the phase shift (see paragraph [0012]) except for shifting the phase of the signal element of the electrical signal as much as $\pi/2$.

However, shifting the phase of the signal element of the electrical signal as much as $\pi/2$ is considered to be obvious, since the high-speed and high frequency modulation is dependent on the phase shift of the signal element of the electrical signal. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Gopalakrishman to have the phase of the signal element of the electrical signal shifted with the value as claimed for the purpose of obtaining the high-speed and high frequency modulation, and it also has been held that discovering an

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optimum value of a result effective variable involves only routine skill in the art and it is noted that the applicant does not disclose criticality in the value claimed.

In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (see MPEP § 2144.05).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sugiyama et al. (U.S. 2003/0147575A1) disclose an optical modulator module (figure 11). And Hosoi (U.S. Patent 6,400,490) discloses a Mach-Zehnder optical modulator (figure 3).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Thursday from 6:00 am to 3:30 pm, second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

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Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink that reads "Jennifer Doan". The script is cursive and fluid, with the first name and last name clearly distinguishable.

Jennifer Doan

Patent examiner

September 29, 2005